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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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WASHINGTON, DC 20005

EXAMINER

WOOD, KIMBERLY T

ART UNIT	PAPER NUMBER
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3632

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12/15/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/822,139	Applicant(s) HEERTJES ET AL.	
	Examiner KIMBERLY T. WOOD	Art Unit 3632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/22/09</u> . | 6) <input type="checkbox"/> Other: _____ |

This is an office action for serial number 10/822,139.

Election/Restrictions

Claims 21-24 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on April 24, 2006.

Applicant's election with traverse of Invention I drawn to claims 1-5 in the reply filed on April 24, 2006 is acknowledged. The traversal is on the ground(s) that the restriction is not proper. This is not found persuasive because each invention has separate utility without the use of the combination and the method claims are separate and distinct species/inventions requiring different searches and/or classification. Claims 1-5 directed to the vibrations isolation system do not require the particulars of the combination to be a stand alone invention such as a vibration isolation system for any body other than a lithographic apparatus as specifically claimed within claims 6-10. The vibration isolation system of claim 1-5 can be used with a vehicle, a computer, a braking system, or any other device which would use a vibration isolation system. Claims 21-25 are directed solely toward a lithographic apparatus in combination with a plurality of active isolator devices and a

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control system however these claims make no mention that the active isolator devices are mechanically coupled to the lithographic apparatus or any body of the illumination system therefore each and every element as claimed by the vibration isolation system of claim 1-6 (mechanically coupled to the body) have not been included within the combination of claims 6-9 therefore the restriction is deemed proper.

The traversal is based on the grounds that the embodiments are directed to a unitary concept and based on various policy arguments. These arguments are unpersuasive. The arguments set forth by the applicant (i.e., a want of a serious burden on the examiner, or inventions having the same classification) are arguments commonly set forth when traversing a restriction of the *invention*. (See MPEP 803). However, the examiner is requiring the applicant to elect between several disclosed species. A proper traversal of an election of species includes arguments that the species are not patentable over one another. What's more, if patentably different species are disclosed in the application, "... it is not necessary to show a separate status in the art or separate classification." (See MPEP 808.01(a)). While there is a policy of compact prosecution, the plain language of the rules set forth that an examiner may require an election of species between patentably different

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species (see MPEP 808.01(a); 37 CFR 1.146). The argument regarding excessive expense is unpersuasive since excessive is a relative concept. Furthermore, as the applicant is aware, a separate fee schedule has been provided for those claiming small-entity status. Finally, there is no policy to reduce the number of patents; in fact, an argument could be made that it is less confusing to have a separate patent for each distinct embodiment.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Tatsuya JP112433. Tatsuya discloses wherein the system comprises a plurality of sensors (10Z1 to 10Z3, 10y1, 10y2, 10X, 5Z1 to 5Z3) to detect vibrations of the body; vibration isolation system comprising a plurality of active isolator devices mechanically coupled to the body (40); and a

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control system (11) configured to control the active isolator devices (7a to 7d), wherein the control system is configured to: transform vibrations measured in a first coordinate system of the plurality of sensors into vibrations in modal directions, that comprise a second coordinate system, corresponding to the natural modes or eigenmodes of the body, wherein the natural modes or eigenmodes of the body; wherein the natural modes or eigenmodes of the body depend on physical characteristics of the body and the body's coupling to an environment; determine a modal compensation signal for each modal direction; transform each modal compensation signal into an active isolator control signal in the first coordinate system for each active isolator device; and stabilize at least one unstable natural mode of the body, wherein the at least one unstable natural mode stabilized by the control system is directed substantially vertically, wherein the body is positioned on a base frame by air mounts, wherein a passive isolator device and an active isolator device engage the body at the same location on the body.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Masato JP 10-275756. Masato discloses vibration isolation system comprising a plurality of active isolator devices mechanically coupled to the body (40); wherein the system comprises a plurality of sensors (10Z1-10X) to detect

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vibrations of the body; and a control system configured to control the active isolator devices, wherein the control system is configured to: transform vibrations measured in a first coordinate system of the plurality of sensors into vibrations in modal directions, that comprise a second coordinate system, corresponding to the natural modes or eigenmodes of the body, wherein the natural modes or eigenmodes of the body; wherein the natural modes or eigenmodes of the body depend on physical characteristics of the body and the body's coupling to an environment; determine a modal compensation signal for each modal direction; transform each modal compensation signal into an active isolator control signal in the first coordinate system for each active isolator device; and stabilize at least one unstable natural mode of the body, wherein the at least one unstable natural mode stabilized by the control system is directed substantially vertically, wherein the body is positioned on a base frame by air mounts, wherein a passive isolator device and an active isolator device engage the body at the same location on the body,

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's specification in paragraph [0043] through [0044]. The applicant has admitted that active vibration isolation devices may compensate any undesirable

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characteristics of the passive isolation devices. A known active vibration isolation system comprises active isolation devices and a control system to control the active isolation devices. Such an active isolation system, in particular the control system thereof, may be configured to employ a modal transform vibrations technique. Modal transform is a coordinate transformation, usually from a Cartesian coordinate system, to a modal coordinate system. The modal coordinate system comprises coordinate axes that are orientated in the directions of the natural vibrations of the body concerned. This description teaches the applicant's claimed invention as prior art and is therefore rejected.

Response to Arguments

Applicant's arguments filed have been fully considered but they are not persuasive.

In response to applicant's arguments that Tatsuya does not teach or suggest any "operational modes" and "control modes" that involve the claimed transformations of the Cartesian vibrations measurements to any form of "modal" coordinate system (i.e., a second coordinate system, is hereby traversed. Tatsuya clearly teaches a Control mode of an exposure body portion 40 is set in accordance with the operation mode of a moving body by a

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target value output section 44. In accordance with this set control mode, a controller 11 controls actuators 7A to 7D, 32A to 32C on the basis of outputs of displacement sensors 10Z1 to 10Z3, 10Y1, 10Y2, 10X and oscillation sensors 5Z1 to 5Z3, 5Y1, 5Y2, 5X, thereby carrying out oscillation control and position control of the exposure body portion 40. Therefore, efficient control of the actuators in accordance with the operation mode of the moving body may be realized, and excessive driving of the actuators may be avoided (which resulted from transforming each modal compensation signal into an active isolator control signal for each active isolator device0. Thus, unnecessary heating of the actuators can be prevented (stabilizing at least one unstable natural mode of the body).

In response to applicant's arguments that Masato does not teach or suggest "a control system [that] is configured to: transform vibrations measured in a coordinate system of the plurality of sensors into vibrations in modal directions, that comprise a separate coordinate system, corresponding to the natural modes or eigenmodes of the body, wherein the natural modes or eigenmodes of the body depend on physical characteristics of the body and the body's coupling to an environment...", is thereby traversed. Masato teaches a main body part 40 is detected with dislocation sensors, and it is

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converted into dislocation on a reticule stage 101 by a reticule stage coordinate conversion part 71. Based on the calculated dislocation (determining modal compensation signal), a reticule stage control part 91 so drives/controls actuators 95X, 95Y, and 95R that the reticule stage 101 is driven (recoupling each modal compensation signal) to cancel the calculated dislocation of reticule stage 101 (stabilizing at least one unstable natural mode).

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly T. Wood whose telephone number is 571-272-6826. The examiner can normally be reached on Monday-Thursday 7:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Allen Shriver can be reached on 571-272-6698. The fax phone number for the

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organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kimberly T. Wood/
Kimberly T. Wood
Primary Examiner
Art Unit 3632

December 7, 2009